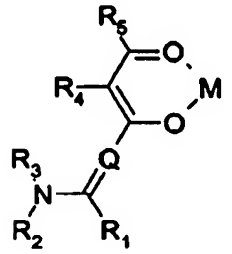
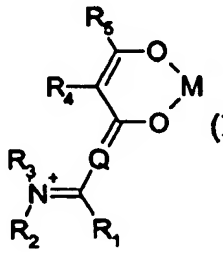
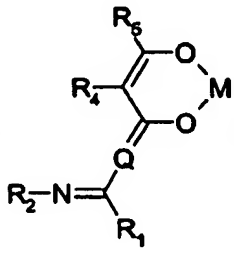
What is claimed is:

1. An optical recording medium comprising a substrate, a recording layer and optionally a reflecting layer, wherein the recording layer comprises a compound of formula


(Ia),

(Ib) or

(Ic) , wherein

M is hydrogen, aluminium or, preferably, a transition metal, which may in addition be coordinated with one or more further ligands and/or, for balancing out an excess charge, where applicable, may have an electrostatic interaction with one or more further ions inside or outside the coordination sphere, but M in formulae (Ib) and (Ic) is not hydrogen,

Q is C–H, N or C–R_6, it being possible for the stereochemistry of the C=Q double bond to be either E or Z,

R_1 is hydrogen, OR_7, SR_7, NHR_7, NR_7R_8, C_1-C_{12}alkyl, C_2-C_{12}alkenyl, C_2-C_{12}alkynyl, C_3-C_{12}cycloalkyl, C_3-C_{12}cycloalkenyl, C_7-C_{12}aralkyl, C_2-C_{11}heteroaralkyl, C_6-C_{10}aryl or C_1-C_9heteroaryl,

R_2 and R_3 are each independently of the other C_1-C_{12}alkyl, C_2-C_{12}alkenyl, C_2-C_{12}alkynyl, C_3-C_{12}cycloalkyl, C_3-C_{12}cycloalkenyl, C_7-C_{12}aralkyl, C_2-C_{11}heteroaralkyl, C_6-C_{10}aryl or C_1-C_9heteroaryl,

R_4 is cyano, COR_9, $COOR_7$, $CONH_2$, $CONHR_7$, $CONR_7R_8$, C_2-C_{12}alk-1-enyl, C_3-C_{12}cycloalk-1-enyl, C_2-C_{12}alk-1-ynyl, C_2-C_5heterocycloalkyl, C_3-C_5heterocycloalkenyl, C_6-C_{10}aryl or C_1-C_9heteroaryl,

R_5 is cyano, COR_7, $COOR_7$, $CONH_2$, $CONHR_7$, $CONR_7R_8$, NHR_9, NR_8R_9, C_1-C_{12}alkyl, C_2-C_{12}alkenyl, C_2-C_{12}alkynyl, C_3-C_{12}cycloalkyl, C_3-C_{12}cycloalkenyl, C_7-C_{12}aralkyl, C_2-C_{11}heteroaralkyl, C_6-C_{10}aryl or C_1-C_9heteroaryl,

R_6, R_7 and R_8 are each independently of the others C_1-C_{12}alkyl, C_2-C_{12}alkenyl, C_2-C_{12}alkynyl, C_3-C_{12}cycloalkyl, C_3-C_{12}cycloalkenyl, C_7-C_{12}aralkyl, C_2-C_{11}heteroaralkyl, C_6-C_{10}aryl or C_1-C_9heteroaryl,

it being possible for R_1 and R_2, R_1 and R_6, R_2 and R_3, R_2 and R_7, R_3 and R_6, R_4 and R_5, R_4 and R_6, R_4 and R_7 and/or R_7 and R_8 in pairs to be so linked to one another that 1, 2, 3 or 4 carbocyclic or N-, O- and/or S-heterocyclic rings are formed, it being possible for any such ring, independently of any other(s), where applicable to be fused to an aromatic or heteroaromatic ring and/or for a plurality of N-, O- and/or S-heterocyclic rings to be fused to one another, and

it being possible for any N in an N-heterocyclic ring to be unsubstituted or substituted by R_9; it being possible for any alkyl, alkenyl, alkynyl (in each case, where applicable, as part of non-aromatic rings), cycloalkyl or cycloalkenyl and, where applicable, a plurality of alkyl, alkenyl, alkynyl, cycloalkyl and/or cycloalkenyl groups independently of one another to be unsubstituted or mono- or poly-substituted by R_{10}; and it being possible for any aryl, heteroaryl or aralkyl or, where applicable, a plurality of aryl, heteroaryl and/or aralkyl groups independently of one another to be unsubstituted or mono- or poly-substituted by R_{11};

R_9 being H, R_7, COR_7, $COOR_7$, $CONH_2$, $CONHR_7$ or $CONR_7R_8$;

R_{10} being halogen, OH, NH_2, NHR_{12}, $NR_{12}R_{13}$, $NHNH_2$, $NHNHR_{12}$, $NHNR_{12}R_{13}$, $NR_{14}NH_2$, $NR_{14}NHR_{12}$, $NR_{14}NR_{12}R_{13}$, NHOH, $NHOR_{12}$, $NR_{14}OH$, $NR_{14}OR_{12}$, O-R_{12}, O-CO-R_{12}, S-R_{12}, CO-R_{12}, oxo, thiono, =N-R_{12}, =N-OH, =N-O$^\bullet$, =N-OR_{12}, =N-NH_2, =N-NHR_{12}, =N-$NR_{12}R_{13}$, CN, COOH, $CONH_2$, $COOR_{12}$, $CONHR_{12}$, $CONR_{12}R_{13}$, SO_2NH_2, SO_2NHR_{12}, $SO_2NR_{12}R_{13}$, SO_2R_{12}, SO_3R_{12} or $PO(OR_{12})(OR_{13})$;

R_{11} being halogen, NO_2, CN, NH_2, SH, OH, CHO, R_{15}, OR_{15}, SR_{15}, $C(R_{16})=CR_{17}R_{18}$,

$SO_2NR_{19}R_{20}$, SO_2R_{19}, COOH, $COOR_{19}$, $OCOOR_{19}$, $NHCOR_{19}$, $NR_{19}COR_{21}$, $NHCOOR_{19}$, $NR_{19}COOR_{21}$, $P(=O)OR_{19}OR_{21}$, $P(=O)R_{19}OR_{21}$, $P(=O)R_{19}R_{21}$, or being C_1-C_{12}alkyl, C_3-C_{12}cycloalkyl, C_2-C_{12}alkenyl, C_3-C_{12}cycloalkenyl, C_1-C_{12}alkylthio, C_3-C_{12}cycloalkylthio, C_2-C_{12}alkenylthio, C_3-C_{12}cycloalkenylthio, C_1-C_{12}alkoxy, C_3-C_{12}cycloalkoxy, C_2-C_{12}alkenyloxy or C_3-C_{12}cycloalkenyloxy each unsubstituted or substituted by one or more, where applicable identical or different, R_{10} radicals;

R_{12}, R_{13} and R_{14} being each independently of the others C_1-C_{12}alkyl, C_3-C_{12}cycloalkyl, C_2-C_{12}alkenyl, C_3-C_{12}cycloalkenyl, C_6-C_{14}aryl, C_1-C_{12}heteroaryl, C_7-C_{18}aralkyl or C_2-C_{16}heteroaralkyl; or

R_{12} and R_{13}, together with the common N, being pyrrolidine, piperidine, piperazine or morpholine each unsubstituted or mono- to tetra-substituted by C_1-C_4alkyl;

R_{15} being C_6-C_{14}aryl, C_1-C_{12}heteroaryl, C_7-C_{18}aralkyl or C_2-C_{16}heteroaralkyl each unsubstituted or substituted by one or more, where applicable identical or different, R_{22} radicals;

R_{16} being hydrogen, cyano, halogen, nitro, or being C_1-C_{12}alkyl, C_3-C_{12}cycloalkyl, C_2-C_{12}alkenyl or C_3-C_{12}cycloalkenyl each unsubstituted or substituted by one or more, where applicable identical or different, halogen, hydroxy, C_1-C_{12}alkoxy or C_3-C_{12}cycloalkoxy radicals, or being C_6-C_{14}aryl, C_1-C_{12}heteroaryl, C_7-C_{18}aralkyl or C_2-C_{16}heteroaralkyl each unsubstituted or substituted by one or more, where applicable identical or different, R_{10} and/or nitro radicals;

R_{17} and R_{18} being each independently of the other $NR_{19}R_{20}$, CN, $CONH_2$, $CONHR_{19}$, $CONR_{19}R_{20}$ or $COOR_{20}$;

R_{19}, R_{20} and R_{21} being each independently of the others R_{15}, or being C_1-C_{12}alkyl, C_3-C_{12}cycloalkyl, C_2-C_{12}alkenyl or C_3-C_{12}cycloalkenyl each unsubstituted or substituted by one or more, where applicable identical or different, halogen, hydroxy, C_1-C_{12}alkoxy or C_3-C_{12}cycloalkoxy radicals; or

R_{19} and R_{20}, together with the common N, being pyrrolidine, piperidine, piperazine or morpholine each unsubstituted or mono- to tetra-substituted by C_1-C_4alkyl; or being carbazole, phenoxazine or phenothiazine each unsubstituted or substituted by one or more, where applicable identical or different, R_{22} radicals; and

R_{22} being halogen, NO_2, SO_2NH_2, SO_2NHR_{12}, $SO_2NR_{12}R_{13}$, or being C_1-C_{12}alkyl, C_3-C_{12}cycloalkyl, C_1-C_{12}alkylthio, C_3-C_{12}cycloalkylthio, C_1-C_{12}alkoxy or C_3-C_{12}cycloalkoxy each substituted by one or more, where applicable identical or different, R_{10} radicals; wherein

- when R_7, R_8, R_9, R_{10}, R_{11}, R_{12}, R_{13}, R_{14}, R_{15}, R_{16}, R_{17}, R_{18}, R_{19}, R_{20}, R_{21} and/or R_{22} are present more than once, each of them is independent of all others; and/or

- two identical or different entities of formula (Ia), (Ib) or (Ic) may, if desired, have a common partial structure or be joined by a direct bond; and, when M in two such joined entities is the same, it may also be a single atom.

2. An optical recording medium according to claim 1, wherein M is Al, Au, Bi, Cd, Ce, Co, Cu, Cr, Hf, In, Ir, Mn, Mo, Nb, Ni, Fe, Os, Pb, Pd, Pt, Re, Rh, Ru, Si, Sn, Ta, Ti, V, W, Zn or Zr, preferably Co, Cu or Ni, especially Co(II), Cu(II) or Ni(II).

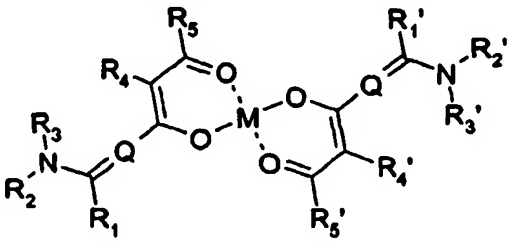
3. An optical recording medium according to either claim 1 or claim 2, wherein, when R_1 and R_6 together and/or R_4 and R_5 together form a carbocyclic or heterocyclic ring, that ring is neither an aromatic ring nor a pyrone.

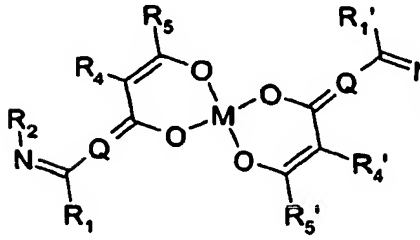
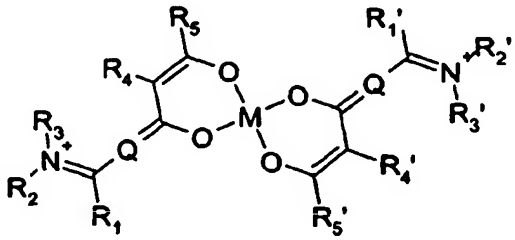
4. An optical recording medium according to claim 3, wherein a carbocyclic or heterocyclic ring which may be formed by R_1 and R_6 and/or by R_4 and R_5 has at least one fully saturated carbon in the ring.

5. An optical recording medium according to claim 1, 2, 3 or 4, wherein Q is C–H or N, R_9 is R_7, and/or where applicable a carbocyclic or N-, O- and/or S-heterocyclic non-aromatic ring has from 3 to 12 members, preferably 5 or 6 members.

6. An optical recording medium according to claim 1, 2, 3, 4 or 5, wherein R_4 and R_5 together form a 5- or 6-membered ring.

7. An optical recording medium comprising a substrate, a recording layer and optionally a reflecting layer, wherein the recording layer comprises a compound of

formula  (IIa),

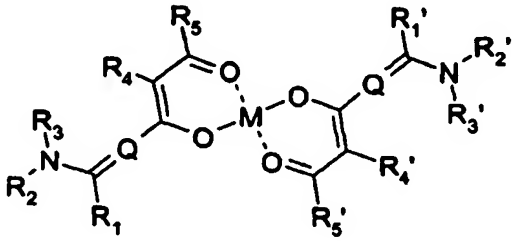
 (IIb) or  (IIc), or

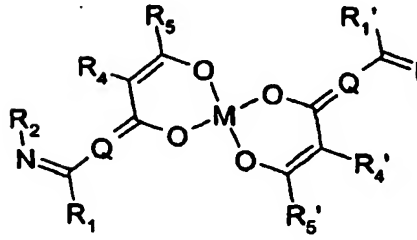
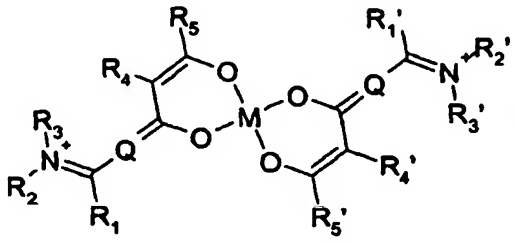
a stereoisomer, oligomer or tautomer thereof, wherein M is aluminium or a transition metal and R_1' independently of R_1 is as defined for R_1, R_2' independently of R_2 is as defined for R_2, R_3' independently of R_3 is as defined for R_3, R_4' independently of R_4 is as defined for R_4, and R_5' independently of R_5 is as defined for R_5, it being possible for R_1' and R_1, for R_2' and R_2, for R_3' and R_3, for R_4' and R_4, and for R_5' and R_5 in each case to be identical or different and it being possible, where appropriate, for a radical R_1', R_2', R_3', R_4' or R_5' to be bonded to a radical R_1, R_2, R_3, R_4 or R_5 by a direct bond, and Q, R_1, R_2, R_3, R_4 and R_5 being as defined in claim 1.

8. An optical recording medium according to claim 1, 2, 3, 4, 5, 6 or 7, wherein the recording layer comprises at least two compounds of formula (Ia), (Ib) or (Ic), at least two compounds of formula (IIa), (IIb) or (IIc), or at least one compound of formula (Ia), (Ib), (Ic), (IIa), (IIb) or (IIc) wherein M is aluminium or a transition metal together with a compound of formula (Ia) wherein M is hydrogen.

9. A method of recording or playing back data, wherein the data on an optical recording medium according to claim 1, 2, 3, 4, 5, 6, 7 or 8 are recorded or played

10. A compound of formula (Ia), (Ib) or (Ic) according to claim 1, 2, 3, 4, 5 or 6, wherein M is a transition metal, with the proviso that, when R_1 and R_8 together and/or R_4 and R_5 together form a carbocyclic or heterocyclic ring, that carbocyclic or heterocyclic ring is neither an aromatic ring nor a pyrone.

11. A chelate of formula  (IIa),

 (IIb) or  (IIc), or a

stereoisomer, oligomer or tautomer thereof, wherein M is aluminium or a transition metal and R_1' independently of R_1 is as defined for R_1, R_2' independently of R_2 is as defined for R_2, R_3' independently of R_3 is as defined for R_3, R_4' independently of R_4 is as defined for R_4, and R_5' independently of R_5 is as defined for R_5, it being possible for R_1' and R_1, for R_2' and R_2, for R_3' and R_3, for R_4' and R_4, and for R_5' and R_5 in each case to be identical or different and it being possible, where appropriate, for a radical R_1', R_2', R_3', R_4' or R_5' to be bonded to a radical R_1, R_2, R_3, R_4 or R_5 by a direct bond, and Q, R_1, R_2, R_3, R_4 and R_5 being as defined in claim 1.

12. A process for the preparation of a chelate of formula (IIa), (IIb) or (IIc) according to claim 11, which comprises

(a) deprotonating a compound of formula (Ia), (Ib) or (Ic) according to claim 1, 2, 5 or 6 or a compound of formula (IIa) according to claim 7, wherein M is hydrogen, in a hydrophilic, O-containing liquid using a base;

(b) adding a non-inert salt of aluminium or a transition metal M;

(c) optionally adding additional ligands in a from 1.0x to 1.5x stoichiometric amount;

(d) optionally adding another liquid which is miscible with the O-containing liquid so that the chelate of formula (IIa), (IIb) or (IIc) precipitates out; and

(e) isolating the chelate of formula (IIa), (IIb) or (IIc).

13. Use of a compound of formula (Ia), (Ib) or (Ic) according to claim 10 or of formula (IIa), (IIb) or (IIc) according to claim 11 in the production of an optical recording medium.